5.0 STUDY CONCEPTS

The options for crossing the proposed ROW are limited to either going over the ROW and Genwal's entries or under them. Examination of the drill hole core log nearest the proposed crossover indicates either concept is viable. Going over the ROW is preferable from a construction viewpoint, as it allows any water (either from the mine or drill water) to drain by gravity, rather than accumulate in an undercast. In a dry mine the construction cost difference is negligible.

The original concept was to drive crossovers 18 feet wide by 6 feet high, as the coal thins on the north side of the crossover to a height of 5 to 6 feet. This thinning has been observed in both core drilling and in Genwal's existing mine. A preliminary cost estimate indicates it is less costly to drive the entries at an 8 foot height rather than 6. The extra height allows the use of a drill jumbo rather than jacklegs. This will permit a longer round to be drilled and blasted in the same amount of time. It will also allow the use of a larger loader to remove the broken material. Therefore, this estimate is based on the 8 foot height.

The access in this study consists of three parallel entries, 18 feet wide by 8 feet high. They will cross over the Genwal ROW by ramping up at 15% grade (generally considered the steepest grade for efficient use of diesel powered rubber-tired equipment) to the desired elevation which will be at a point directly over Genwal's southern ~~northern~~ most entry along the ROW. They will continue flat across the ROW for 420 feet. Connecting crosscuts, midway across the flat section, will be driven to connect the three entries. A decline (ramp) will be driven down at -15% to connect back to the coal seam on the north side of the ROW. The total length of each entry is 960 feet; total project length for the three entries and connecting crosscuts is 3000 feet.

Lacking specific rock strength data, a conservative approach has been taken of having 30 feet of interburden between the Genwal entries and the ROW crossover. This will ensure a safe, airtight, maintenance free crossover. Prior to actual construction, a rock mechanics consultant should study conditions at the site to verify conditions and ascertain that 30 feet is a conservative interburden thickness. In the ROW Impact Study dated 29 November, the proposed slope passed within 20 feet of an entry, however, this represents a sloping plane passing over a single point. The average thickness of interburden over the entries in that concept was also 30 feet.

The slope chosen for the ramps and the thickness of interburden determines the length of the barrier between the mine workings and Genwal's entries across the ROW. In this case, with a 15% grade and 30 feet of interburden, the barrier will be 270 feet. A steeper slope on the ramps would shorten this barrier, however, it would result in problems for moving coal mining equipment across the ROW crossover. The design chosen represents a feasible, safe and economic way to accomplish the objective.